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Haijun Wu

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WOLF GREENFIELD & SACKS, P.C.
600 ATLANTIC AVENUE
BOSTON, MA 02210-2206

EXAMINER

HUSSAIN, IMAD

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/555,722	Applicant(s) WU ET AL.	
	Examiner IMAD HUSSAIN	Art Unit 2451	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,10,11 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10,11 and 18-21 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>25 October 2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 27 October 2008 has been entered.
2. Applicant's amendment dated 27 October 2008 has been received and made of record.
3. Claim 9 has been cancelled. Claims 1, 5, 10, 20 and 21 have been amended.
4. Applicant's amendment of claim 5 obviates previously raised claim objection. As such, this objection is withdrawn.
5. Claims 1, 3-8, 10, 11 and 18-21 are pending in Application 10/555722.

Response to Arguments

6. Applicant's arguments filed 27 October 2008 have been fully considered but they are not persuasive.

Applicant argues, with regard to claims 1 and 21, that Christensen does not disclose that "the subscriber location information code comprises one or more indexes

Art Unit: 2451

of MAC address, priority, protocol encapsulation mode, and subscriber type of the subscriber terminal”.

Examiner respectfully disagrees with Applicant's interpretation of the prior art. Christensen, in Figure 8 and Paragraph 0034, discloses that the subscriber location information code [“virtual MAC address”] comprises *one or more* indexes of a MAC address [Element 86, “unique MAC address bits” and Element 85, “index”], priority, protocol encapsulation mode, and subscriber type of the subscriber terminal.

Applicant argues, with regard to claim 20, that Christensen is limited to identifying a DSL modem and not a specific computer or set-top box connected to a DSL modem.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that “the method defined by claim 20 is also capable of identifying a specific computer, set-top box (STB), or the like, connected to a DSL modem, so that the real subscriber characteristics can be identified more definitely”) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Specifically, Christensen discloses identifying “the location on the network of any user of a virtual MAC address” [Christensen: Paragraph 0034].

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-5, 7, 8, 11, 18, 19 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Christensen et al (US 2004/0141468, hereinafter *Christensen*).

Regarding claim 1, Christensen teaches *a method for transferring subscriber location information in a network communication system* [Abstract], *comprising:*

determining, by a network access device, the subscriber location information [“source MAC address”] *when a subscriber accesses the network* [paragraph 29, sentences 2-3 and Figure 7], *wherein the subscriber location information comprises an identifier of the network access device* [“Access Node” identifier], *a slot number of a subscriber interface board* [“ADSL Line number”], *and a port number* [“PVC”] *of a port of the subscriber interface board in the network access device* [Figure 8 and paragraphs 32-33];

converting [“generating”, paragraph 26, sentence 3 and “mapping”, paragraph 29, sentence 3], *by the network access device, the subscriber location information into a*

Art Unit: 2451

code ["virtual MAC address", paragraph 29, sentence 4] in an encoding format ["48 bits", paragraph 31, sentence 5 and Figure 8] of a content of a field ["MAC address field"] in a packet sent from the subscriber [paragraph 29, sentence 4];

replacing, by the network access device, the content of the field in the packet with the subscriber location information code ["virtual MAC address", paragraph 29, sentences 3-4], and transferring the packet in the network communication system [Figure 7],

wherein said subscriber location information code comprises:

one or more indexes of broadband access device ["access node"] number ["address domain"], device frame number ["index field"], slot number ["ADSL line number"], and port number ["PVC"] that are required to identify the subscriber location information [paragraphs 31-35];

one or more indexes of MAC address, priority, protocol encapsulation mode, and subscriber type of the subscriber terminal that describe subscriber characteristics [paragraph 34].

Regarding claim 3, Christensen teaches that *said step comprises:*

converting, by the network access device converting ["generating", paragraph 26, sentence 3 and "mapping", paragraph 29, sentence 3] the accessed subscriber location information into a code ["virtual MAC address", paragraph 29, sentence 4] in the encoding format ["48 bits", paragraph 31, sentence 5 and Figure 8] of the MAC address

Art Unit: 2451

carried in the packet to be sent outwards by the subscriber [paragraph 29, sentences 3-4].

Regarding claim 4, Christensen teaches that *said step comprises:*

replacing the source MAC address information carried in the packet sent from the subscriber [paragraph 29, sentence 4] *with the determined subscriber location information code* [paragraph 29, sentence 4], *and sending the packet to an access server* ["Broadband Remote Access Server (BRAS)", Figure 7] *in the network communication system.*

Regarding claim 5, Christensen teaches that *said network access device* ["access node"] *is a broadband* ["Asymmetric DSL"] *access device* [paragraph 29, sentence 2] and that *said access server is a Broadband Remote Access Server, BRAS, or a network device with BRAS function in the broadband network* [paragraph 30, sentence 1 and Figure 7 "BRAS"].

Regarding claim 7, Christensen teaches a method *further comprising:*

replacing a destination MAC address in a packet, from the network-side port of the network access device, addressed to the subscriber with the MAC address of the subscriber terminal [paragraph 29, sentence 4];

and then sending the packet to the subscriber terminal ["Station... using ADSL", paragraph 29, sentence 2] [Figure 7].

Regarding claim 8, Christensen teaches that *said step comprises:*

encoding, by the network access device, [“generating”, paragraph 26, sentence 3 and “mapping”, paragraph 29, sentence 3] the subscriber location information into a 48-bit subscriber location information code [“virtual MAC address”, paragraph 31] in the encoding format of the MAC address [Figure 8 and paragraph 31].

Regarding claim 11, Christensen teaches that *said subscriber location information encoding comprises:*

mapping the subscriber location information to the subscriber location information code through direct mapping [paragraph 25, last sentence].

Regarding claim 18, Christensen teaches that *the subscriber location information further comprises a Media Access Control, MAC, address of a subscriber terminal [Figure 5 and Figure 8].*

Regarding claim 19, Christensen teaches that *the subscriber accesses the network via the port of the subscriber interface board [Paragraph 33, “PVC”s map to logical ports; “Lines” map to physical ports].*

Regarding claim 21, Christensen teaches *a network access device, comprising:*

means for [“Access Node”, Figure 7] *determining a subscriber location information* [“source MAC address”] *when a subscriber accesses the network* [paragraph 29, sentences 2-3 and Figure 7];

means for [“Access Node”] *converting* [“generating”, paragraph 26, sentence 3 and “mapping”, paragraph 29, sentence 3] *the subscriber location information into a code* [“virtual MAC address”, paragraph 29, sentence 4] *in an encoding format* [“48 bits”, paragraph 31, sentence 5 and Figure 8] *of a content of a field in a message from the subscriber* [paragraph 29, sentence 4];

means for [“Access Node”] *replacing the content of the field in the message with the subscriber location information code* [“virtual MAC address”, paragraph 29, sentences 3-4], *and transferring the message in the network communication system* [Figure 7];

wherein the subscriber location information comprises an identifier of the network access device [“Virtual MAC domain/address domain”], *a port number of a port of a subscriber interface board in the network access device* [“PVC” or “ADSL line number”], *a slot number of the subscriber interface board* [“ADSL line number” or “PVC”], *and a Media Access Control, MAC, address* [“MAC address”] *of a subscriber terminal* [Figure 5 and Figure 8, Paragraphs 31-35];

wherein the subscriber accesses the network via the port of the subscriber interface board [paragraph 29, sentences 2-3 and Figures 7-8],

wherein said subscriber location information code comprises:

one or more indexes of broadband access device ["access node"] number ["address domain"], device frame number ["index field"], slot number ["ADSL line number"], and port number ["PVC"] that are required to identify the subscriber location information [paragraphs 31-35];

one or more indexes of MAC address, priority, protocol encapsulation mode, and subscriber type of the subscriber terminal that describe subscriber characteristics [paragraph 34].

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christensen in view of Rai et al (US 6675208, hereinafter *Rai*).

Regarding claim 6, Christensen teaches the method of claim 5, as discussed above. Christensen further teaches a method *comprising configuring a correspondence ["mapping"] between the subscriber location information and the subscriber location information code in the broadband ["ADSL"] access device [Christensen, paragraph 29, sentences 2-3 and Figure 7].*

Art Unit: 2451

Christensen does not explicitly disclose that this correspondence step also occurs *in the broadband access server or a Radius Server*.

However, Rai teaches a method of configuring a correspondence ["registering"] for subscriber location information ["detail subscriber service profile information"] and a subscriber location information code ["information about a network to which a foreign agent belongs" and "security credentials"] in a Radius Server ["Home Registration Server", Rai, Figure 15 and Column 20, lines 1-21].

Christensen and Rai are analogous subject matter in the same field of endeavor as both cover registering subscribers in broadband networks.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the Radius Server teaching of Rai in the system of Christensen. One of ordinary skill in the art would have been motivated to modify the system of Christensen because in doing so, the system would allow for greater categorization of connection messages and separation of duties [Rai, Column 2, lines 36-45].

11. Claims 10 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christensen in view of Edward Reuss (US 20030165230 A1, hereinafter *Reuss*).

Regarding claim 10, Christensen teaches the method of claim 8, as discussed above.

Christensen further teaches that *said code comprises*:

24 bits, content determined by network access device manufacturers [“access node-unique MAC address bits”; *index of MAC address* [“Index”]; *index of network access device ID* [“Virtual MAC domain/address domain”]; *index of the access port number* [“PVC”]; *and index of slot number* [“ADSL line number”] *of the subscriber interface board where the subscriber accesses* [Figure 8 and paragraphs 31-35].

Christensen does not particularly teach that the index is 5 bits, the address domain is 7 bits, the PVC is 7 bits and the line number is 5 bits.

However, Christensen states that his layout is only one of many possible embodiments [Christensen: paragraph 21] and represents a “trade-off between flexibility and traceability” [Christensen: paragraph 31]. Christensen further states that the Unit Specific Use field (which, in the example embodiment, comprises the Index, PVC, and Line fields) may be altered “for different network purposes” or “as needed” and provides the example of combining two each 4-bit fields (PVC and Line [Christensen: Figure 8]) into one field of 8 bits, as such enabling 256 possible address values (e.g. for providing sufficient addresses for at least 100 ports) [Christensen: paragraph 35].

Reuss teaches utilizing the 24-bit extension field to generate up to 2^{24} unit MAC addresses, wherein the MAC address length corresponds to the desirable amount of uniquely identifiable MAC addresses [Reuss: paragraph 51].

Hence, given the suggestions of Christensen to select a field length within a range of possible field lengths (e.g. not exceeding the total 48-bit total) based on or corresponding to a predetermined desirable amount of identifiable unique addresses or identifiable unique values obtainable as a result of that selected length, and the

Art Unit: 2451

suggestions of Reuss for using a extension field providing up to a maximum of 24-bits available for usage, to selectively predetermine the particular length of the MAC address using the extension field bits for creating a corresponding desirable amount of identifiable unique addresses. It would have been obvious to select particular field lengths for the index field, address domain field, PVC field and line number field corresponding with a the desirable amount of identifiable unique addresses/identifier value needed.

Christensen and Reuss are analogous subject matter in the same field of endeavor as both cover the generation of MAC addresses.

One of ordinary skill in the art would be motivated to utilize the suggestions mentioned above to generate, particularly, an index of 5 bits, and address domain of 7 bits, a PVC of 7 bits and the line number of 5 bits, as claimed because in doing so would allow more users per access node (2^5 instead of 2^4 line numbers) but fewer MAC addresses per PVC (2^5 instead of 2^8 index numbers) [Christensen: paragraph 33].

Regarding claim 20, Christensen teaches a *method for transferring subscriber location information in a network communication system* [Abstract], *comprising:*

determining, by a network access device, the subscriber location information ["source MAC address"] *when a subscriber accesses the network* [paragraph 29, sentences 2-3 and Figure 7];

converting ["generating", paragraph 26, sentence 3 and "mapping", paragraph 29, sentence 3], *by the network access device, the subscriber location information into a*

Art Unit: 2451

48-bit [“48 bits”, paragraph 31, sentence 5 and Figure 8] *subscriber location information code* [“virtual MAC address”, paragraph 29, sentence 4] *in an encoding format of a Media Access Control, MAC, address* [“MAC address field”] *carried in a message sent by the subscriber* [paragraph 29, sentence 4];

replacing, by the network access device, the MAC address in the message with the subscriber location information code [“virtual MAC address”, paragraph 29, sentences 3-4], *and transferring the message in the network communication system* [Figure 7],

wherein said 48-bit subscriber location information code comprises: index of MAC address [“Index”]; *index of and identifier of the network access device* [“Virtual MAC domain/address domain”]; *index of the a port* [“PVC” or “ADSL line number”] *through which the subscriber accesses the network; and index of slot number* [“ADSL line number” or “PVC”] *of the subscriber interface board having the port* [Figure 8 and paragraphs 31-35].

Christensen does not explicitly disclose that the index is 5 bits, the address domain is 7 bits, the PVC is 7 bits and the line number is 5 bits.

However, Christensen states that his layout is only one of many possible embodiments [Christensen: paragraph 21] and represents a “trade-off between flexibility and traceability” [Christensen: paragraph 31]. Christensen further states that the Unit Specific Use field (which, in the example embodiment, comprises the Index, PVC, and Line fields) may be altered “for different network purposes” or “as needed” and provides the example of combining two each 4-bit fields (PVC and Line [Christensen: Figure 8])

Art Unit: 2451

into one field of 8 bits, as such enabling 256 possible address values (e.g. for providing sufficient addresses for at least 100 ports) [Christensen: paragraph 35].

Reuss teaches utilizing the 24-bit extension field to generate up to 2^{24} unit MAC addresses, wherein the MAC address length corresponds to the desirable amount of uniquely identifiable MAC addresses [Reuss: paragraph 51].

Hence, given the suggestions of Christensen to select a field length within a range of possible field lengths (e.g. not exceeding the total 48-bit total) based on or corresponding to a predetermined desirable amount of identifiable unique addresses or identifiable unique values obtainable as a result of that selected length, and the suggestions of Reuss for using a extension field providing up to a maximum of 24-bits available for usage, to selectively predetermine the particular length of the MAC address using the extension field bits for creating a corresponding desirable amount of identifiable unique addresses. It would have been obvious to select particular field lengths for the index field, address domain field, PVC field and line number field corresponding with a the desirable amount of identifiable unique addresses/identifier value needed.

Christensen and Reuss are analogous subject matter in the same field of endeavor as both cover the generation of MAC addresses.

One of ordinary skill in the art would be motivated to utilize the suggestions mentioned above to generate, particularly, an index of 5 bits, and address domain of 7 bits, a PVC of 7 bits and the line number of 5 bits, as claimed because in doing so would allow more users per access node (2^5 instead of 2^4 line numbers) [Christensen:

Art Unit: 2451

paragraph 33] and an inherent organization of uniquely identifiable MAC addresses [Reuss: paragraph 51].

Conclusion

12. **Examiner's Note:** Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant.

Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the text of the passage taught by the prior art or disclosed by the examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to IMAD HUSSAIN whose telephone number is (571) 270-3628. The examiner can normally be reached on Monday through Friday from 0800 to 1700.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (571) 272-3964. The fax phone

Art Unit: 2451

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/IH/

Imad Hussain
Examiner, Art Unit 2451

/Salad Abdullahi/

Primary Examiner, Art Unit 2457